

NEW NEVADA ORTHOPTERA RECORDS FOR
THE 1949 COLLECTING SEASON

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TETTIGONIIDAE

Tettigoniinae

ZACYCLOPTERA ATRIPENNIS CAUDELL, 1907

In the 42 years since the discovery of this species, sporadically intensive collecting has failed to extend its range beyond that of the type locality, the southern end of Walker Lake, Mineral County, Nevada. Although I have never quite believed the species could be so restricted, particularly in light of the fact that many Nevada valleys are practically carbon copies of Walker Valley, several attempts on my part to detect it beyond the confines of the valley were failures.

It might be supposed that the large Walker Lake, occupying most of Walker Valley, had something to do with creating a habitat somehow different from that of other valleys lacking bodies of water, but even a casual collecting acquaintance with *Z. atripennis* and its habits plainly showed the lake to be as non-functional as a habitat factor as if it did not exist. The large insect is a distinct arenophile, inhabiting sand dunes and sanded areas, and the plants it has been recorded from are pronounced eremophiles and widely recorded far from the vicinity of water. These plants grow practically to the rapidly receding shoreline of brackish Walker Lake, and when this 30 by 5 mile lake (175 feet deep) has completely disappeared, as it will within the lifespan of many who read this, these same eremophilous plants will grow the entire length and breadth of the valley, unless an alkaline playa occupies the flat valley floor.

However, the actual discovery of the species outside the type locality was a considerable and unexpected surprise—expecting to find it south, east or north of Walker Valley, seemingly the best possibilities in the order named, I found it two valleys to the west!

Lyon County: *Smith Valley* (highway 3 miles east of Central), 18, 21 & 23:vii:49, elev. 4,850 ft.—La Rivers

All specimens were taken at night, three males and two females being found on the highway, and two ovipositing females in the brush some 100 yards from the highway. This locality is some 40 airline miles west-northwest of the south end of Walker Lake, and separated from it by two mountain ranges and their intervening valleys. The same plants are present although the elevation is higher. The area in which the Zacyclopterae were found is dominated by the little greasewood, *Sarcobatus baileyi*, with an abundance of saltbrush (*Atriplex confertifolia*), Indian tea (*Ephedra nevadensis*) and sand bunchgrass (*Oryzopsis hymenoides*). Along the sandy road shoulders, an occasional scrawny *Dalea polyadenia*, characteristic indicator of sand dunes and their environs, showed the effects of car movement on desert shrubs. With some slight change in percentiles, the general botanic picture was characteristically that of the animal's type locality. And the first specimens were taken only accidentally—while collecting for the much more common *Plagiostira gillettei*, which see.

In habits, Zacycloptera is more prone to bite than the equally large Plagiostira, which latter is relatively mild-tempered for such a husky, well-mandibled insect. The larger, black wings of Zacycloptera, spread down along the abdominal sides when disturbed, give the animal a more pugnacious aspect than its companion species.

In addition to its vegetarian habits, Zacycloptera, like most of its group, is avidly scavengerous when the opportunity presents itself. The first specimen taken, a female, was feeding on a car-crushed Plagiostira. While this is a common trait in tettigoniids, it is not at all remarkable, since such pronounced vegetarians as Eleodes (Coleoptera: Tenebrionidae) will feed readily on car-crushed insects.

On July 22, two ovipositing females were found during the course of night collecting, both in the *Sarcobatetum baileyi* some 100 yards north of the highway, only one of which was collected. This specimen kept its ovipositor in the ground for 20 minutes after being found in spite of the bright Coleman lamp, then pulled her ovipositor from the ground and hurried off—into my cyanide bottle. Sieving the spot produced seven grayish-white eggs identical, as nearly as the eye can tell, to the eggs of *Plagiostira gillettei*, and much like those of *Anabrus simplex*. A rather cold wind was blowing gently, and a temperature reading at the oviposition site gave 69° F.

Mineral County: *Yerington-Schurz highway* (1 mile east of

Mineral-Lyon County line), 23:vii:49, elev. 5,500 ft—La Rivers; *Thorne Dunes*, 23:vii:49, elev. 4,600 ft—La Rivers.

The Yerington-Schurz highway record is that of a car-crushed specimen and constitutes the northernmost record for the species, the locale being some 38 airline miles northwest of the type locality and 25 airline miles northeast of the Smith Valley locality (33 airline miles due north of type locality baseline, and 17 airline miles due north of the Smith Valley locality baseline). Like the Smith Valley specimens, it was found at night.

The species seems to wander about on the ground only during the cooler hours after dark; the three males and one female found at the Thorne Dunes were all taken between sundown and deep dusk, and in bushes, principally *Dalea polyadenia*. Unlike those at Smith Valley, none were found wandering the ground after dark, and so the hoped-for oviposition data was not forthcoming here. I was not able to induce any of the males to sing.

CAPNOBOTES OCCIDENTALIS (THOMAS), 1872

A specimen of this small-bodied, large-winged species, common over large parts of Nevada, was found at the Smith Valley Zacycloptera locale feeding on a car-crushed *Plagiostira gillettei*. Omnivorous, it is agile enough to catch other insects in full vigor (La Rivers, 1948) and is equally a vegetarian and a carnivore.

PLAGIOSTIRA GILLETTEI CAUDELL, 1907

This large and extremely handsome insect was also found in Smith Valley for the first time, and much more commonly than at any previous Nevada locality. Once considered rare, even after being recorded from two localities in west-central Nevada (La Rivers, 1948), its appearance in what can only be described as comparatively fantastic numbers at certain spots this season makes past use of the word "rare" almost meaningless.

Lyon County: *Smith Valley* (1)—Artesia Dunes, 20:vii:49, elev. 4,800 ft.—La Rivers; (2)—highway 3 miles east of Central, 15, 18, 21, 22:vii:49, elev. 4,850 ft.—La Rivers; (3)— $\frac{1}{2}$ mile south of Hudson (Helé), 23:vii:49, elev. 4,800 ft.—La Rivers; (4)—Three Forks (3 miles north of Central), 9, 14, 16, 18:vii:49, elev. 4,800 ft.—La Rivers.

The species was first taken at the Three Forks locality, which is a small sanded area just north of the West Walker River, dominated by the arenophilous *Tetradymia comosa*, a large, strikingly pleasant bush with whitish stems and leaves and bright yellow flowers; where I have seen it in Nevada, this plant is an indicator of sanded

areas. Its principal companion plant here was the nearly equally large shadscale, *Atriplex canescens*.

Mid-day collecting at Three Forks almost immediately disclosed the presence of *Plagiostira*, and in considerable numbers, several in each bush. They were invariably hanging quietly, head up or down, and some feeding took place during this hot noon period.

The animal is slow and clumsy and easy to catch. Few showed any signs of alarm even when approached as close as three feet, and when they did decide to move, they wandered slowly and reluctantly downward along a stem. If the source of the disturbance passed on, or moved away a distance, they returned to inactivity or feeding. If an unsuccessful pass was made at an individual, it usually sufficiently excited the animal to cause it to drop, sometimes aided by a weak push from the hind legs, into the center of the bush. Few made this descent in less than several stages, but the brittle dead stems and dense living stems of the large bush were usually sufficient to save them from further persecution.

These specimens were a little more pugnacious than I had remembered them from previous Nevada collecting, and I soon found that catching them between two handkerchiefs was easier on the fingers, both from the standpoint of the occasional sharp twig encountered, and their formidable jaws, and the chance of missing the specimen was also considerably lessened. As with practically all insects which bite at all, these would bite anything within reach—one excited female swallowed the tarsi and half of the tibia of one of her middle legs, which were extracted whole only with considerable difficulty.

While most specimens here were taken from the numerous *Tetradymia comosa*, they were also common in the tops of the large and green shadscale. Typically, the heat at this part of the day registered 100° F. Night collecting at Three Forks showed that practically all specimens left the bushes and wandered about extensively on the ground during these cooler hours. Although night temperatures were pleasantly warm, *Plagiostirae* were lethargic, and even constant nudging failed to elicit more than a reluctant hop, seemingly more in indignation than fear. Such habits lead to speculations as to what protection the species has for perpetuation. Although undoubtedly possessed of parasites, none were found during the several weeks observance of the species in Smith Valley. Principal associates in this night wandering were the large tenebrionids *Eleodes obscura sulcipennis* and *E. armata*, the former predominant.

The discovery of Plagiostirae on the highway east of Central was accidental, and several nights collecting produced several quarts of specimens. The center of population for this particular area seemed to begin some three miles east of Central and extend the mile-and-a-half from there to the west portal of Wilson Cañon. At about the middle of this area, the topography breaks from a low central bench down to lower, rolling land toward Wilson Cañon, and the eastern edge of the bench yielded the greatest number of specimens. In this same general area, hordes of *Celerio lineata* (Lepidoptera: Sphingidae) caterpillars were marching about during the day, stripping first any and all Onagraceae to be found, then feeding on other vegetation. Unlike the Three Forks locality, this area was dominated by *Sarcobatus baileyi* and *Atriplex confertifolia* (see *Zacycloptera atripennis*) and was quite different in facies.

About a third of the highway Plagiostirae were taken while feeding on their car-crushed brethren, and it was found that any highway-killed animal was acceptable food—specimens were seen feeding on the remains of *Eleodes hispilabris imitabilis* (tenebrionid), *Zacycloptera atripennis*, an unidentified myrmeleonid, the large scorpion *Hadrurus hirsutus* and the remains of the common blacktailed jackrabbit, *Lepus californicus*. One lone female was noted trying to insert her long, decurved ovipositor into the asphalt. While all specimens try to bite when picked up, none make the vigorous body contortions of such as *Capnobotes* in attempts to “mandibulate” the captor. The defensive display made by spreading the intensely black hind wings down along the abdominal sides is a conspicuous element of their “fight” reaction, and many of the males sang weakly and intermittently when handled.

At this locality, *Hadrurus hirsutus* was found feeding on a non-crushed male Plagiostira, which it had evidently caught while prowling the highway. In addition, crushed specimens were food for *Eleodes hispilabris imitabilis*, an unidentified myrmeleonid, *Zacycloptera atripennis*, *Capnobotes occidentalis* and the gryllacridid *Stenopelmatus fuscus*.

The lone ovipositing Plagiostira was taken in rather rocky ground a few yards south of the highway.

At the Artesia Dunes, in northeastern Smith Valley, the species was commonly found day and night. These dunes are stationary, with a good growth of *Dalea polyadenia*, *Ephedra nevadensis*, *Atriplex canescens* and *Tetradymia comosa* and are low, long, generally north-south ridges apparently blown eastward from the shores of

the large alkaline playa, Artesia Lake, which occupies a considerable portion of the north end of Smith Valley. Unlike Three Forks, where the species was not found in vegetation during nighttime, or the Central Highway, where no specimens could be found during daytime, at Artesia Dunes they were found both in vegetation and on the ground during twilight and after dark. Two specimens *in copulo* were noted in a large Russian thistle (*Salsola kali tenuifolia*), while two additional females were found with the newly attached seminal sac still protruding unassimilated from the abdominal terminus. As many as 15 specimens were found in one medium-sized Dalea bush.

The Hudson locality was much like that at Three Forks, being on the south side of the West Walker River, with the same species of plants.

Churchill County: *Fossil Hills*, 20 mi. WSW of Fallon, 31:vii:49, elev. 4,500 ft—La Rivers; 1 mi. E. of *Mahala Sloughs*, 14:vii:49, elev. 4,000 ft.

The Mahala Sloughs specimens were collected by Miss Laura E. Mills and Mrs. J. S. Mills of Fallon, and from information obtained from Miss Mills later, it seems that the species was commoner on the highway here (U. S. 50) than in Smith Valley. The dominant plant in this region of white alkali is the large greasewood, *Sarcobatus vermiculatus*, on which the Mills saw *Plagiostirae* feeding. On the highway with the larger insect was the much smaller gryll-acridid *Ammobaenetes lariversi*, which is known to be quite common locally on sand dunes.

At the Fossil Hills locality, several specimens were found in hot mid-afternoon in large Russian thistles growing on a series of small dunes composed of fine, very white sand. These dunes lay in a south-facing pocket in the southwest corner of the small range, at a considerable elevation above the Lahontan Valley floor, and the dominant bush was Russian thistle. This record, with Mahala Sloughs, delineates the known northwestern limits of the species' range in this part of Nevada.

In the following list of host plants, those newly added by this season's collecting are marked with an asterisk:

**Artemisia tridentata*, *Atriplex canescens*, *A. confertifolia*, **Dalea polyandenia*, **Ephedra nevadensis*, *Oryzopsis hymenoides*, *Salsola kali tenuifolia*, **Sarcobatus baileyi*, **S. vermiculatus* and **Tetradymia comosa*.

ANOPLODUSA ARIZONENSIS (REHN), 1904

Churchill County: 6 mi. E. of *Stillwater*, 9:viii;49, elev. 4,000 ft.—La Rivers.

The discovery of this very rare insect as far north as west-central Nevada was the crowning surprise of the collecting season. Previously known only from Arizona and extreme southern Nevada, its rarity has made it an object of intense search in the past (Tinkham, 1942). The comments of Rehn and Hebard (1909) concerning the single specimen they caught on the Nevada side of the Nevada-California state line could be applied with hardly a change in wording to the solitary Stillwater specimen. Both localities are foothill slopes of volcanic hills, and both specimens were flushed from bushes, "greasewood" in the case of southern Nevada, saltbrush (*Atriplex confertifolia*) at Stillwater. The species' former distribution seemed to indicate it was restricted to creosote areas (*Larrea divaricata*); the Stillwater discovery, approximately 300 airline miles northwesterly of its southern Nevada locality, adds the extensive shadscale area to the species' life zone. Stillwater is some 150 airline miles northwesterly from the northwestern limit of creosote in Nevada's Sonoran Trailway (for a brief resumé of this Trailway, see La Rivers, 1948:654).

My attention was attracted to the female specimen by the activities of a small Western collared lizard (*Crotaphytus collaris baileyi*) hunting near the top of a saltbrush (*Atriplex confertifolia*). As I watched, the lizard flushed a large yellowish orthopteran which flew strongly to another bush about 100 feet away, where it was caught. Two days and one night were spent combing a vicinity of about a square mile for other specimens, without success. The two dominant plants of the gradual slope are the mentioned *Sarcobatus baileyi* and *Atriplex confertifolia*. The slope itself is composed of soft alkaline dust—Pleistocene Lake Lahontan sediments—covered with the typical desert pavement of volcanic stones and pebbles.

The specimen was not quite so prone to bite as is the similarly-built *Capnobotes occidentalis*.

It seems expedient, at this point, to mention an additional specimen for California. Tinkham (1942) recorded a badly disintegrated individual from Yermo in southern California, in the collection of the state quarantine station there. I recently noticed a fine female specimen in the collection of the Division of Entomology and Parasitology of the University of California at Berkeley with

the following data: San Bernardino County: *Yermo Quarantine Station*, 3:vii:49, elev. 1,935 ft.—Warren Leigh. It was taken in early evening, presumably at light.

GRYLLACRIDIDAE

STENOPELMATUS FUSCUS HALDEMAN, 1852

Lander County: 8 mi. E. of *Austin*, on U. S. 50, 2:ix:49, elev. 5,500 ft.—La Rivers and T. J. Trelease; Lyon County: *Smith Valley*—(1)—Artesia Dunes, 20:vii:49, elev. 4,800 ft.—La Rivers—(2)—highway 3 mi. E. of Central, 18:vii:49, elev. 4,850 ft.—La Rivers.

The above records add two more counties to those already listed for the State (La Rivers, 1948). The animal certainly occurs in every county of the State. All specimens were found wandering after dark, the Lyon County individual feeding on a car-crushed *Plagiostira*.

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BOOK NOTICE

INSECTS IN YOUR LIFE. By C. H. Curran. Sheridan House, Inc., New York, 316 pp., illustrated. 1951. Price \$3.50.

As the title suggests, insects cannot be entirely divorced from the human race. They have been associated with man ever since he first laid aside a few acorns, a bit of smoked meat and a supply of hides to cover his back. Good or bad, they are reluctant to be disassociated from either animal or plant life. Dr. Curran has written a graphic and excellent account of some of the closer contacts we have with insects. To fully appreciate his viewpoint, the reader must cast away all hearsay prejudices and assume an attitude of confidence in words of a well educated and experienced entomologist. It must be borne in mind, too, that these few examples are only fragments of what may be written on behalf of or against these tiny creatures that have had some two hundred million years more experience on this earth than we humans.